IN THE CLAIMS:

Please cancel claims 1-5, 11-24, 35, and 36. **Please also amend** claim 30, as shown in the complete list of claims that is presented below.

Claims 1-5 (cancelled).

6. (previously presented) A method for encoding a data signal, comprising the steps of:

spreading the data signal with a spreading code to generate a transmission signal, wherein the transmission signal corresponds to the data signal; and

encoding the transmission signal into an output transmission signal to be transmitted through a communications medium to a receiver, wherein the output transmission signal contains bits, the value of each bit is either a first value or a second value, and the number of bits with the first value is equal to the number of bits with the second value in the output transmission signal,

wherein the output transmission signal is a DC-balanced signal.

7. (original) The method of claim 6, wherein the Manchester Code is used to encode the transmission signal.

8. (original) The method of claim 6 wherein the output transmission signal comprises the transmission signal and an inversion of the transmission signal.

9. (original) The method of claim 6 wherein the output transmission signal comprises the transmission signal and a reversed inversion of the transmission signal.

10. (original) The method of claim 6 wherein each bit in the data signal corresponds t444o two bits in the encoded data signal exclusively.

Claims 11-24 (cancelled).

25. (previously presented) An apparatus for encoding a data signal, comprising:

a spreading code generator for outputting a spreading code;

a spreader coupled to the spreading code generator, for spreading the data signal according to the spreading code, and outputting a transmission signal; and

an encoder coupled to the spreader, for encoding the transmission signal and outputting an output transmission signal to be transmitted through a communications medium to a receiver, wherein the output transmission signal contains bits, the value of each bit is either a first value or a second value, and the number of bits with the first value is equal to the number of bits with the second value in the encoded data signal;

wherein the output transmission signal is a DC-balanced signal.

26. (original) The apparatus of claim 25, wherein the Manchester Code is used to encode the data signal.

27. (original) The apparatus of claim 25 wherein the output transmission signal comprises the transmission signal and an inversion of the transmission signal.

28. (original) The apparatus of claim 25 wherein the output transmission signal comprises the transmission signal and a reversed inversion of the transmission signal.

29. (original) The apparatus of claim 25 wherein each bit in the transmission signal corresponds to two bits in the output transmission signal exclusively.

30. (currently amended) An apparatus for encoding a data signal, comprising:

a spreading code generator for outputting a spreading code, wherein the spreading code contains a direct current (DC) component;

an encoder coupling to the spreading code generator, for encoding the spreading code and outputting an encoded spreading code, wherein the encoded spreading code is a first DC-balanced signal; and

a spreader coupled to the encoder, for spreading the data signal according to the encoded spreading code, and outputting an output transmission signal to be transmitted through a communications medium to a receiver,

wherein the output transmission signal is a second DC-balanced ~~signal.~~ signal,

wherein the spreading code is a Barker code, and the sequence of the Barker code is {1,1,1,0,0,0,1,0,0,1,0}, and

wherein the encoded spreading code comprises an encoded Barker code, and the encoded Barker code is obtained by deleting one of the fourth, fifth, sixth, eighth, ninth, or eleventh bits of the Barker code.

31. (original) The apparatus of claim 30, wherein the Manchester Code is used to encode the data signal.

32. (original) The apparatus of claim 30 wherein the encoded spreading code comprises the spreading code and an inversion of the spreading code.

33. (original) The apparatus of claim 30 wherein the encoded spreading code comprises the spreading code and a reversed inversion of the spreading code.

34. (original) The apparatus of claim 30 wherein each bit in the spreading code corresponds to two bits in the encoded spreading code exclusively.

Claims 35 and 36 (cancelled).

37. (original) The apparatus of claim 30 wherein the spreading code is a Pseudo random Noise (PN) sequence.

38. (original) The apparatus of claim 30 further comprising:

a modulator for modulating the output transmission signal using a carrier wave to obtain a modulated signal; and

an output device for outputting the modulated signal.